

Vision Empower & XRCVC
Teacher Instruction KIT
Data handling

Syllabus: Karnataka State Board
Subject: Math
Grade: 5
Textbook Name: Karnataka State Board
Chapter Number & Name: 10. Data handling

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1.1 OBJECTIVE & PREREQUISITES

Objective

- To know the concept of pictograph and bar graph
- To draw pictographs and bar graphs.

Prerequisite Concept

- Data handling
Review_TIK_MATH_G4_CH15_Data handling

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*Kindly Note: Activities marked with * are mandatory*

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2. LEARN

2.1 KEY POINTS

1. Data handling: Data Handling refers to the process of gathering, recording and presenting information in a way that is helpful to others - for instance, in graphs or charts. Data Handling is also sometimes known as statistics and you will often come across it in the study of both Math and Science.
2. Pictograph: The definition of a pictograph is a symbol or image that represents an idea or data.
3. Bar graph: A bar graph is a chart that uses bars to show comparisons between categories of data. The bars can be either horizontal or vertical. Bar graphs with vertical bars are sometimes called vertical bar graphs. A bar graph will have two axes.

2.2 LEARN MORE

3. ENGAGE

3.1 INTEREST GENERATION ACTIVITY

Activity 1: To create attendance book

Materials required: Slate, braille paper, stylus

Prerequisites: Data collection

Activity Flow

Attendance book is one of the better examples about data handling. Teachers can explain about the attendance book and the data they have collected about how many children have come on which day and how many leaves they have taken and number of girls and boys in the class.

3.2 CONCEPT INTRODUCTION ACTIVITIES

DATA COLLECTION

Activity 2: Revision to data handling

Materials required: None

Prerequisites: Data handling

Activity Flow

Data is a collection of numbers gathered to give some information. To get particular information from the given data quickly, the data has to be recorded and organized.

Ask them the following general questions:

- 1. How many of them like dogs?*
- 2. How many of them do not like to sing?*
- 3. How many of them do not like to eat radish?*

Then, we will get the answer in terms of the number of students for all the questions.

Then later make it a little more difficult by asking the following questions.

- 1. How many of them would like to do only dance, play harmonium, tabla and singing.*

Ask one of the students to get the data of how many of them would like to go for dance, play harmonium, tabla and singing.

Before that, ask him/her how they are going to remember or write down the data.

After they express their way of recording the data then explain them the way we can record the data.

Write all four categories in a paper next to each other (4 columns). Then go to each student, ask their interest and mark with a sticker (small bindi) on a paper below each category.

Finally, we will have data of how many students are interested in each category.

Similarly, ask them to find out their own way of representing data for the question.

- 2. Teachers are planning for a one day trip but they have 4 options in their list, out of which only one place can be covered. Now students have to decide which places would*

most of them wish to go. And the four places are Mysore palace and zoo, Wonderla water games, Bannerghatta National Park and safari and Savanadurga temple and hill.

Also ask them the question and let them solve in their own way. And ask them which method or way of collecting data would give us a clear idea of the event.

Then when it comes to organizing the data, we can explain the way it is in a tabular form.

Organization of Data:

When creating their own tactile data table we can paste bindis or toothpicks or small sticks on a sheet of paper in a table and can count the number of bindis or sticks from the table.

PICTOGRAPH

Activity 3: Pictograph and its construction

Materials required: Sheets of paper, sticks, seeds

Prerequisites: Pictograph

Activity Flow

A Pictograph represents the data through pictures of objects. So we can count the number of pictures for each category and know the total number of things under each category.

To draw a pictograph:

Give them the different shapes of stickers or sticks by using which they can create their own pictographs.

For example: To create a pictograph for the herbivores, carnivores and omnivores.

- *Ask all of them to take a sheet of paper. Make two columns of category and number of animals. Write herbivores, carnivores and omnivores one below the other under the category column. And in the number of animal's column paste the objects with respect to the category.*
- *Ask them to find 3 different objects like pieces of paper, sticks and seeds. So that each object represents each category of animal.*
- *Now, ask them to give examples not orally instead they will paste the corresponding object one by one depending on the number of examples they can give for each category.*
- *Ask them to count and tell the number of examples given to each category.*
- *Likewise we can create our own image using whichever material you find it easy and common materials like cloth, paper, thread, plastic and draw the pictograph for all the examples given in the book.*

Similarly, for the following example they can create a pictograph using different shapes of bindis representing different dishes.

Ask them to solve the examples in the book and then ask them to interpret.

Example: Soma and Rama went to a hotel to have breakfast. Then they saw the menu card which has the list of breakfast from Monday to Friday, which they are going to prepare on each particular day.

Monday – Chitranna, Masala dosa and Pulav

Tuesday – Puri, Pulav and Puliogare

Wednesday – Chitranna, Masala dosa and Pulav

Thursday- Puri, Pulav and Puliogare

Friday- Chitranna, Masala dosa and Pulav

Saturday-Puri, Pulav and Puliogare

Sunday- Chitranna, Masala dosa and Pulav

So, they too were curious to know the dish liked by maximum (more) number of people and the dish liked by minimum (less) number of people.

So, they started visiting each day and started marking with stickers representing people in front of each dish whichever dish they take from 8 o'clock to 10 o'clock.

At the end after interpreting the collected data they found that the maximum number of people liked Masala dosa and minimum like Chitranna. Then they suggested the hotel manager by showing their observation to make masala dosa twice in a week, so that it invites more customers.

BAR GRAPH

Activity 4: Bar graph and its construction - Type I

Materials required: Tactile graph sheet, bindis, Tactile diagram of bar chart

Prerequisites: Bar graph

Activity Flow

- *A Bar Graph also called Bar Chart is a graphical display of data using bars of different heights.*
- *In a bar graph scaling is important. We should mention or tell everyone that 1 unit length is equal to so much. Show them the tactile diagram of bar graph, vertical column represents the marks, horizontal row represents subjects and the scale is 1 unit length is equal to 10 marks.*

- *To draw a bar graph, take a tactile graph sheet which has small unit squares. In the tactile diagram the scale would be the height of each square is 10 units then put the bindis in each square according to the heights.*

Activity 5: Bar graph construction - Type II

Materials required: Sheet of paper, parchment paper, geometry kit

Prerequisites: Bar graph

Activity Flow

- *Ask them to draw a vertical and horizontal line on parchment paper using tactile ruler so that they are perpendicular to each other with a common point, which is a graph.*
- *Then for every one centimeter ask them to mark along the vertical line where one unit is equal to 10 points.*
- *Ask them to give points from 10 to 50 based on their interest for the following three things, such as chocolate, ice cream and biscuits. Suppose if one of the children likes chocolate more and gives 40 points, for ice cream 30 points and for biscuits 20 points, which follows the same order in a horizontal line in the graph.*
- *Then depending on the points they give for all three things, for example if Adarsh gives 40 points to chocolate then he should cut a paper strip having length of 4 centimeters and paste it in parallel to the vertical column. If he gives 30 points for ice cream then cut a paper strip of 3 centimeter and paste in parallel to chocolate. Similarly, he gives 20 points to biscuits then cuts a paper strip of 2 centimetre and paste in parallel to ice cream.*
- *Finally, we could see a tactile bar graph.*
- *Also help the students to interpret the data. And ask all of them to create their own bar graph and let them interchange and interpret the data.*
- *Let everybody share their interpretations of others' bar graphs.*
- *Similarly, ask the students to work out all the bar graphs using Braille graph sheets and stickers. And they can also use sticks of required height for the graph with the help of tactile ruler.*

3.3 LET'S DISCUSS: RELATE TO DAILY LIFE*

- **Pictographs have become a part of everyday life. If looking for an airport, a camping site or toilet etc., they point us in the right direction.**
- **Public buildings use picture-based signs to direct visitors to the elevators, cafeterias, and lavatories.**
- **Cashiers at many fast food chains have pictographic registers, clicking on pictures of burgers and fries to input orders. Even popular game apps such as Angry Birds are language less programs, guiding users with arrows and other icons.**

- We can use bar graphs to show the relative sizes of many things, such as what type of car people have, how many customers a shop has on different days and so on.
- We use bar graphs in marketing, climate figures and to represent our finance.

4. EXERCISES & REINFORCEMENT

4.1 PRACTICE EXERCISES

HOMEWORK PROBLEMS

Activity 6: Homework problems

Materials required: Sheet of paper, parchment paper, geometry kit, Tactile graph sheet, bindis

Prerequisites: Bar graph and pictograph

Activity Flow

1. Ramu had 5 pens, 3 erasers, 6 books, 2 pencils and one sharpener in his bag. Write the data in tabular form and represent the same through a pictograph.
2. A survey of 120 school students was done to find the activity they prefer to do in their free time.

<i>Preferred activity</i>	<i>Number of students</i>
<i>Playing</i>	<i>45</i>
<i>Reading story books</i>	<i>30</i>
<i>Watching TV</i>	<i>20</i>
<i>Listening to music</i>	<i>10</i>
<i>Painting</i>	<i>15</i>

Scale 1 cm/1 unit square = 5 students

Which activity is preferred by most of the students other than playing?

3. The number of belts sold by a shopkeeper on six consecutive days of a week is as follows.

<i>Days</i>	<i>Number of belts sold</i>
<i>Monday</i>	<i>20</i>
<i>Tuesday</i>	<i>30</i>
<i>Wednesday</i>	<i>45</i>
<i>Thursday</i>	<i>35</i>
<i>Friday</i>	<i>25</i>

Saturday

20

Scale: 1cm = 5 belts

What is the total number of belts sold in 6 days?

4.2 IMPORTANT GUIDELINES*

Exercise Reading

It is very important that the children practice their learnings as well as their reading. Hence have the children read out the newly learned concepts from their textbooks or other available resources.

Perform Textbook Activity

It is good practice to have the children perform the textbook activities. Your textbook activities might not be accessible hence go through this resource to learn how to make textbook content accessible

Provide Homework

To evaluate their understanding and to help the student revise and implement the new learnt concept ensure to provide them with homework. Students should perform one or two of the questions mentioned above or from the textbook exercises with the teacher in Class and the remaining may be given for homework. Also, ensure that the student knows their special skills linked to independently using their accessible books as it will be critical to doing homework independently

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